

III.—*Catalogue of the Land and Freshwater Mollusca of Ireland.* By W. M. THOMPSON, Vice-President of the Natural History Society of Belfast.

ON the subject of the Conchology of Ireland, three catalogues were published within a comparatively short period; Dr. Turton's in July 1816, in the 'Dublin Examiner, or Monthly Miscellany of Science, Literature and Art;' Capt. Brown's in the second volume of the Wernerian Memoirs in 1818*; and in this same year a third appeared in the Appendix to Walsh and Whitelaw's History of Dublin, from the pen of M. J. O'Kelly, Esq. of that city. The species of land and freshwater Mollusca enumerated in these three catalogues are much the same, and about fifty in number. In the subsequent works of Brown and Turton a few more species were added. To Bryce's 'Tables of Simple Minerals, Rocks and Shells,' found in three of the northern counties, published in 1831, Mr. Hyndman contributed two species hitherto unnoticed. In the London and Edinburgh Philosophical Magazine for 1834 (p. 300.), about thirty additional species were made known by myself; in a paper entitled 'Additions to the Fauna of Ireland,' published in the Annals for last March, I noticed a few more; and in the present communication there are two species previously unrecorded. I shall here, for the sake of brevity, avoid entering into detail respecting any of the species thus alluded to, but shall correct in its proper place in the following paper, in so far as my information extends, every error, either of others or of my own.

The order in which the genera and species appear in Mr. Gray's edition of Turton's 'Manual of the Land and Freshwater Shells of the British Islands,' is adopted.

Class 1. GASTEROPODA, *Cuv.*

Order I. PHYTOPHAGA.

Fam. 1. NERITIDÆ.

Gen. 1. NERITINA, *Lam.*

1. *N. fluviatilis*, *Lam.* Gray, *Man.* p. 83. pl. 10. f. 124.

Nerita fluviatilis, *Mont.* p. 470; *Drap.* p. 31. pl. 1. f. 1—4.

Is found in the east, west, and south of Ireland. The localities given by Capt. Brown are—"In a stream at Clonooney; in the Shannon and Bresna; and in some places of the canal adhering to stones," p. 532. In the vicinity of Dublin it occurs in the Grand

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Fam. 2. PALUDINIDÆ.

PALUDINA, Lam.

1. *P. vivipara*, Lam. Gray, Man. p. 90. pl. 10. f. 118.

Cyclostoma viviparum, *Drap.* p. 34. pl. 1. f. 16, 17.

Helix vivipara, *Mont.* p. 386.

In his 'Irish Testacea,' p. 527, Capt. Brown notices this species under the last-quoted name as found "in a stream near Newtownards, county of Down ; rare"—by a letter from this author I learn that he himself procured the shell in that locality. Mr. Gray (Man. p. 34.) incidentally notices *Paludina achatina* as an Irish species, but on inquiry from him he could not recollect from whom he had received the information. I have not seen undoubtedly native specimens either of *P. vivipara* or *P. achatina*.

2. *P. tentaculata*, Flem.

Helix tentaculata, *Linn.*, *Mont.* p. 389.

Bithinia tentaculata, *Gray*, Man. p. 93. pl. 10. f. 120.

P. impura, *Lam.*, *Turt.* Man. p. 134. f. 120.

Cyclostoma impurum, *Drap.* p. 36. pl. 1. f. 19, 20.

A common species throughout the island, generally approximating *Draparnaud's* var. f. 20. pl. 1. more nearly than his normal shell f. 19. I have on different occasions found the stomachs of Gillaroo Trout from Lough Neagh filled with this *Paludina*.

Fam. 3. VALVATADÆ.

VALVATA, Muller.

1. *V. piscinalis*, Lam. Gray, Man. p. 97. pl. 10. f. 114.

Cyclostoma obtusum, *Drap.* p. 33. pl. 1. f. 14.

Turbo fontinalis, *Mont.* p. 348. t. 22. f. 4.

Common, and generally distributed over Ireland. Many of my middle-sized specimens correspond with Pfeiffer's *V. depressa*, in so far as the figure and diagnostic description enable me to judge, Pfeiff. part 1. p. 100. t. 4. f. 33. See Gray, Man. p. 98. This species is very variable in the degree of elevation of its spire, and consequently in its diameter relatively to its height. I have been favoured by Edward Waller, Esq. with specimens of this *Valvata* collected at Finnoe, county Tipperary, the volutions of which appear angular from being spirally cut, as they occasionally are in various species of *Limneus*, and the angles are marked with a white line.

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This handsomely formed species is distributed over the island. The *Valv. Planorbis*, Drap., noticed as Irish in Lond. and Edin. Phil. Mag. 1834, p. 300, must be erased from the list.

Order II. PNEUMONBRANCHIATA.

Fam. 1. ARIONIDÆ.

ARION, Ferus.

1. *A. ater*, Gray, Man. p. 104.

Limax ater, Linn.

Arion empiricorum, Fer.

This species, the common "black snail," is abundant throughout Ireland. Its varieties, *A. rufus* (*Limax rufus*, Linn.), and *A. marginatus*, as remarked by Mr. Templeton, likewise occur. Under a coloured drawing of the latter made by this naturalist is the remark, "common in fields about Cremorne, county Monaghan, August 4, 1805." The yellow variety is likewise found in the north and south (Miss M. Ball). Under precisely the same circumstances of food and "habitation" I have met with the varieties above-mentioned. See Gray, Man. p. 105.

2. *A. hortensis*, Fer. Gray, Man. p. 107.

"Common at Cranmore (Belfast)," Templeton's MS. Coloured drawings of the variety of this or the preceding species, named *A. circumscriptus* by Dr. Johnston, were made by Mr. Templeton in 1808. To this I can only add, that the species is common throughout the north.

Fam. 2. HELICIDÆ.

1. LIMAX, Fer.

1. *L. maximus*, Linn. Gray, Man. p. 112.

L. cinereus, Drap.

This, the common "large grey slug," is equally abundant in north and south. In the stomach of the Song Thrush (*Turdus musicus*), I have frequently found the shell of this species, the *Limacella parma* of Turton's Manual, after the animal, of which it had been part, had been entirely dissolved. I have procured similarly the shells of the smaller *Limaces* from the Blackbird (*Turdus Merula*). Either this or the next species is accused by Miss M. Ball of making its way into pantries and eating holes in bread.

2. *L. flavus*, Linn. Gray, Man. p. 114.

L. variegatus, Fer. *Hist. de Moll.* p. 71. pl. 5. f. 1—6.

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3. *L. agrestis*, Linn. Gray, Man. p. 117.

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4. *Limax*

The Rev. B. J. Clarke, of Merrion Square, Dublin, has favoured me with a coloured drawing and a description of a *Limax* which he has taken at La Bergerie, Queen's county, and describes to be "blackish-grey on the back, lighter underneath, with a sharp keel down the back proceeding from the shield." It may be the *L. carinatus*, Leach, or *L. gagates*, Drap.; but not having seen any specimens, I abstain from naming it even with a mark of doubt.

2. VITRINA.

V. pellucida, Drap. p. 119. pl. 8. f. 36, 37. Gray, Man. p. 120. pl. 3. f. 21.

Is in suitable localities distributed over Ireland, and may be found under the first stones we meet with in going inland from the seashore, up to as great an altitude in the mountain glens as there are moss and leaves to shelter it. I have remarked the colour both of animal and shell to vary, and the latter to present some differences in form. See Jeffreys on *V. Mulleri* and *V. Draparnaldi* in Linnean Transactions, vol. xvi. When thin and of an almost crystalline transparency, the shell is often more handsomely formed than when thicker and of a greenish colour, and is intermediate between the *V. pellucida* and *V. diaphana*, as represented by Draparnaud (pl. 8.) and Rossmassler (t. 1.); this state is equally common with the normal *V. pellucida*; of this, the animal is lighter in colour, and not so large compared with the shell as in the variety*.

3. TESTACELLA, Cuv.

Testacellus haliotideus, Fer. Gray, Man. p. 124. pl. 3. f. 19, 20.

Testacella haliotidea, Drap. p. 121. pl. 8. f. 44, 45.

This species was discovered many years ago by Mr. R. Ball in the town gardens at Youghal, where it has become much scarcer of late. The Irish specimens agree with English examples of the var. *V. scutulum*, with which I have been favoured by Mr. G. B. Sowerby. Mr. Gray (Man. p. 123, 124.) seems to consider this a naturalized species, but the circumstance of its being found at Youghal speaks more strongly in favour of the *T. haliotideus* being a true native than that of its being met with in some of the gardens around

* Most of the very numerous species of land mollusca which I find on the fallen leaves of trees are particularly partial to those of the Scotch elm (*Ulmus montana*); when the large and rough leaves of this tree are mingled with those of the common forest or ornamental kinds, I have observed that about twenty specimens may be found on them, for one on an equal proportion of any of the others. When the ground is saturated with moisture the cause of this preference is obvious, as the nerves of the leaves are so strongly developed, that when the under side is next the ground the membranous portion of the leaf between them remains quite dry.

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The Rev. B. J. Clarke, of Merrion Square, Dublin, has favoured me with a coloured drawing and a description of a *Limax* which he has taken at La Bergerie, Queen's county, and describes to be "blackish-grey on the back, lighter underneath, with a sharp keel down the back proceeding from the shield." It may be the *L. carinatus*, Leach, or *L. gagates*, Drap.; but not having seen any specimens, I abstain from naming it even with a mark of doubt.

2. VITRINA.

V. pellucida, Drap. p. 119. pl. 8. f. 36, 37. Gray, Man. p. 120. pl. 3. f. 21.

Is in suitable localities distributed over Ireland, and may be found under the first stones we meet with in going inland from the seashore, up to as great an altitude in the mountain glens as there are moss and leaves to shelter it. I have remarked the colour both of animal and shell to vary, and the latter to present some differences in form. See Jeffreys on *V. Mulleri* and *V. Draparnaldi* in Linnean Transactions, vol. xvi. When thin and of an almost crystalline transparency, the shell is often more handsomely formed than when thicker and of a greenish colour, and is intermediate between the *V. pellucida* and *V. diaphana*, as represented by Draparnaud (pl. 8.) and Rossmassler (t. 1.); this state is equally common with the normal *V. pellucida*; of this, the animal is lighter in colour, and not so large compared with the shell as in the variety*.

3. TESTACELLA, Cuv.

Testacellus haliotideus, Fer. Gray, Man. p. 124. pl. 3. f. 19, 20.

Testacella haliotidea, Drap. p. 121. pl. 8. f. 44, 45.

This species was discovered many years ago by Mr. R. Ball in the town gardens at Youghal, where it has become much scarcer of late. The Irish specimens agree with English examples of the var. *V. scutulum*, with which I have been favoured by Mr. G. B. Sowerby. Mr. Gray (Man. p. 123, 124.) seems to consider this a naturalized species, but the circumstance of its being found at Youghal speaks more strongly in favour of the *T. haliotideus* being a true native than that of its being met with in some of the gardens around

* Most of the very numerous species of land mollusca which I find on the fallen leaves of trees are particularly partial to those of the Scotch elm (*Ulmus montana*); when the large and rough leaves of this tree are mingled with those of the common forest or ornamental kinds, I have observed that about twenty specimens may be found on them, for one on an equal proportion of any of the others. When the ground is saturated with moisture the cause of this preference is obvious, as the nerves of the leaves are so strongly developed, that when the under side is next the ground the membranous portion of the leaf between them remains quite dry.

London, to which it might much more readily have been introduced along with exotic plants. In a garden at Bandon, too, a *Testacellus* has been procured by Mr. G. J. Allman. The circumstance of this species, indigenous to France and to the island of Guernsey, being found only in the south of England and Ireland, seems to me strongly in favour of its being equally indigenous to these countries. Mr. Ball, in reply to some questions, observes, "I first became aware of this *Testacellus* preying on worms by putting some of them in spirits, when they disgorged more of these animals than I thought they could possibly have contained; each worm was cut (but not divided) at regular intervals. I afterwards caught them in the act of swallowing worms four and five times their own length. Some of these *Testacelli*, which I brought to Dublin and put in my fern house, produced young there."

Testacellus Maugei is noticed by Dr. Turton (Manual, p. 28.) as found "in Ireland," but I have been unable to give any information respecting it, and these two words seem to me insufficient to establish it either as an introduced species or otherwise.

4. HELIX.

1. *Helix aspersa*, Mull. Gray, Man. p. 128. pl. 4. f. 35; Drap. p. 89. pl. 5. f. 22.; Mont. p. 407.

Although distributed over the four quarters of the island, this *Helix* is less generally met with than several other common species. In a well-cultivated and moderately wooded district near Belfast, stretching along the base of the mountains where chalk chiefly prevails, presenting different soils, especially clay and alluvium, and rising to an elevation of 500 feet above the sea, it is never found. Mr. Edward Waller, who has successfully investigated the Mollusca about Annahoe, county Tyrone, states that the *H. aspersa* is unknown there. It seems partial to the vicinity of the sea; so much so, that about Ballantrae in Ayrshire, Scotland, I have remarked numbers of them on rocks, subjected to the spray of the waves, which had bleached the portion of the shell thus exposed as white as it usually becomes in the progress of decay, although the animal inhabitants were all in the highest vigour. In the crannies of the ruined castles, which, like Dunluce, are based upon the summits of some of the highest cliffs washed by the sea in the north of Ireland, the *H. aspersa* is abundant.

In one instance which may be mentioned, differences of rocks, soil, or shelter will not explain the absence of this species from particular localities. During a forenoon's walk on the marine sand-hills of Portrush and Macgilligan (county of Londonderry), which are only a few miles apart, and present in every respect precisely the same appearance, I found the *H. aspersa* abundant at the former, but at the latter wanting, and here the sand-hills are much more extensive than at Portrush. At the nearest sand-hills, again, on the coast to the east of the latter, and only a few miles distant, I did not during a short visit find the *H. aspersa*; and here *Helix virgata*, which is not found at the other two localities, appeared, and

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took the place of *H. ericetorum*, which is common to them; here, too, and at Portrush, *Bulimus acutus* was present, though not so at Macgilligan. On the 8th of June I once observed the *H. aspersa* in coitu, and with the spicula adhering (see Montagu in Test. Brit.);—these are half an inch in length, hollow, and broaden considerably to the base.

In the Magazine of Natural History, vol. v. p. 490, Mr. Denson states that in severe winters the *H. aspersa* is in the old botanic garden at Bury St. Edmunds eaten in quantity by the Norway rat; a fact of which I some years ago had circumstantial evidence in the broken shells lying about the entrance to this animal's abode among heaps of stones in the Horticultural Society's garden at Chiswick, London*.

2. *Helix hortensis*, Lister. Gray, Man. p. 130. pl. 3. f. 24; Drap. p. 95. pl. 6. f. 6; Mont. p. 412.

Although apparently not numerous anywhere, it would seem to be widely distributed in Ireland. To myself it has occurred about Dublin, and at Portrush, along with *H. nemoralis* and *H. hybrida*; has been obtained in the county Donegal; at Moira and Newcastle, county Down; King's County; Kildare; Tipperary; and about the city of Cork. As some authors make the white lip and less size the only differences between this species and *H. nemoralis*, I was for some time in doubt whether it might not be a small variety of the latter, but was fully satisfied of its distinctness by finding both species plentifully in company at Dovedale (Derbyshire), when every individual in size, &c. maintained the respective characters of its species. The *H. hortensis* seems partial to limestone districts.

3. *Helix hybrida*, Poiret. Gray, Man. p. 132.

In July 1833 I obtained the handsome *Helix*, so designated by Mr. Gray, on the marine sand-hills at Portrush, near the Giant's Causeway, along with different varieties of *H. nemoralis* and a very

* *Helix Pomatia*, Linn. The following observations of W. H. Harvey, Esq., communicated in a letter to me in January 1834, include all that need be said of this shell. "Dr. Turton, in his Conchological Dictionary, states that this species is mentioned by Dr. Rutty in his 'Natural History of the county of Dublin,' as not uncommon in his time. On referring to Dr. Rutty's work I cannot find any such assertion. At p. 379. vol. i. he certainly admits it in the following terms: 'Cochlea duplex primo terrestris, the terrestrial snail, and particularly the house snail, which is thus distinguished by Lister; Cochlea cinerea maxima edulis, cujus os operculo crasso gypseo per hyemem clauditur:' and then goes on to tell of its uses as food, the manner of cooking it, &c., but not one word about its habitat."

The *H. Pomatia* has of late years been introduced from England to different localities in Ireland, as Dalkey island, off the Dublin coast, Youghal, &c. In the autumn of 1834 I turned out a few individuals of this species and of *Cyclostoma elegans* on the chalk in the neighbourhood of Belfast, but they have not increased; after a few months I could not find one of either species about the place. See Gray, Man. p. 35.

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The Rev. R. Sheppard has observed in Suffolk that the plain coloured, the single-banded, and the many-banded, do not mingle with each other in coitu, but that each is true to its banded or bandless mate. (Linn. Trans. vol. xiv. p. 163.) In Ireland those so differing have no such scruples; such as I have seen in connexion and displaying each other's spicula or love-darts, have been very dissimilar in colour and markings; they have so occurred to me from the middle of April to that of September. Mr. Hyndman once found a spiculum of this species stuck through the leaf of a dandelion (*Leontodon Taraxacum*); if there be but the one use in this missile, it would thus seem that the animal will occasionally miss its aim.

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This delicate and handsome species was noticed by Capt. Brown and Dr. Turton as having been found about Dublin; at Killarney the Rev. Thomas Hincks of Cork informs me that it is met with; but the north seems to be its more favourite abode: in suitable localities throughout the county of Antrim it prevails, as it likewise does in Down, but more sparingly. Of 147 specimens collected at the same time in the neighbourhood of Larne in the former county, all were of the ordinary state, or marked with the dark band (see Pfeiffer, tab. 2. f. 7.), except 12, which were of the variety in which the band is wanting, the spotting much paler, and the colour generally much lighter. (Pfeiff. tab. 2. f. 8.) Having collected this species in England and Scotland as well as Ireland, I may observe that a certain degree of moisture and shelter have always seemed to be its desiderata. At Dovedale in Derbyshire, and at Knockdolian in Ayrshire*, it occurred plentifully about moist limestone cliffs, and in the latter locality with little more than ferns (especially *Cystea fragilis*) to shelter it. In the north of Ireland I have met with it in shady woods in the lower grounds, and likewise in young plantations at a considerable elevation in the mountains, and where there was no more shade or moisture than the *Luzula sylvatica* requires. From its shell being so easily broken this animal is a favourite food of the thrush genus. (See Magazine of Zoology and Botany †, vol. ii. p. 436.)

6. *Helix pulchella*, Mull. Gray, Man. p. 141. pl. 5. f. 49; Drap. p. 112. pl. 7. f. 30—34.

H. paludosa, Mont. p. 440. *H. crenella*, Mont. p. 441. pl. 13. f. 3.

This species may more literally than most others be stated to be distributed over Ireland, for it is the verge of the sea that marks its boundary. Although occurring throughout the inland parts of the country, it seems especially to delight in the short pastures in the vicinity of the sea around the entire coast; in some of the islets of Strangford Lough, too, I have in like manner observed it.

The var. *H. crenella*, Mont. has been considered by some naturalists peculiar to damp situations; but with this my observation does not accord, the beautiful ribbed variety being more frequent than the smooth state on the dry sea-banks of the North of Ireland. Mr. E. Waller writes to me, with reference to Finnoe, county

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Tipperary, "I have found both varieties of *H. pulchella* in high and and dry grounds as well as damp and low*."

7. *Helix fusca*, Mont. p. 424. t. 13. f. 1; Gray, Man. p. 147†. pl. 4. f. 36.

This handsome species was noticed by Turton as Irish, but merely in the words "woods in Dublin." (Conch. Diet. p. 61.) It is found in the north, east, west, and south, but in King's County and Tipperary has not been met with by my correspondents. As this species, though widely distributed, is by no means common, the following habitats may be enumerated. Glens in the Belfast mountains and Drumnasole, county Antrim; Florence Court, county Fermanagh, W. T. Altadawan, county Tyrone, Edward Waller, Esq.; Kilruddery demesne, county Wicklow, T. W. Warren, Esq.; Monivea, county Galway, Rev. Benj. J. Clarke; "near Limerick once," W. H. Harvey, Esq.†; Youngrove near Youghal, Miss Ball; Dunscombe Wood near Cork, Miss Hincks: in this locality the Rev. T. Hincks, who has supplied me with very fine specimens, remarks that it is abundant. The following notes are perhaps not irrelevantly introduced. Dec. 16, 1833.—Although several times before in Colin Glen near Belfast, in search of Mollusca, I today for the first time, in consequence of its somewhat peculiar haunts, obtained specimens of the *H. fusca*, and of them about two dozen. The ground was saturated with moisture, and they were all briskly traversing the rich green leaves of the *Luzula sylvatica*, and one or two other plants of similar foliage. The animal is much elongated, and moves about with considerably greater rapidity than any *Helix* I have seen; its colour is uniform, but in different individuals varying from "wine-yellow" to blackish-grey§; tentacula of the latter colour, the longer pair in the adult animal $2\frac{1}{2}$ lines in length; from their base a black line extends along the back for 3 lines. Dec. 10, 1837.—In Colin Glen today I obtained upwards of thirty of these *Helices*. The ground was wet, but there had been no rain in the preceding night, and consequently they were not found (with a very few exceptions) on the *Luzula*, but were instead lying sheltered and quiescent be-

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Although not common, is generally distributed over the island, and found in woods among fallen leaves and timber; and under stones, &c. in various situations from the sea-side to the mountain. It seems rarely to occur in quantity, but once at Wolfhill near Belfast, I found thirty individuals congregated under one small stone.

The *H. Mortoni*, agreeing both in animal and shell with Mr. Jeffreys's description (Linn. Trans. vol. xvi. p. 332.) is obtained along with *H. fulva*, but has always seemed to me wanting in sufficient characters to render it a distinct species. That the animal of *H. Mortoni* is lighter coloured than that of *H. fulva*, is not of consequence, as the young of various *Helices* are lighter coloured than the adults.

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10. *Helix lamellata*, Jeffreys. Linn. Trans. vol. xvi. p. 333 ; Gray, Man. p. 150. pl. 5. f. 48.

H. scarburgensis, Bean. MS. Alder's Newc. Catal. p. 36 ; Turton, Man. p. 62.

This attractive species is widely distributed in Ireland, and is found on the decaying leaves and fallen branches of trees, in moss, and under stones in shady and generally moist situations. I first met with it in Sept. 1833, in the Glen at Holywood House, county Down, and soon afterwards in various localities throughout this county and Antrim ; about O'Sullivan's cascade at the lower lake of Killarney, I had the gratification to find it in June 1834, and subsequently in the Glen of the Downs, county Wicklow. By the Rev. B. J. Clarke it has been obtained at La Bergerie, Queen's county, and by the Rev. T. Hincks of Cork, at Dunscombe Wood near that city, and likewise at Ballinhassig Glen between Cork and Bandon. Mr. Hincks remarks that the species appears to be far from uncommon in that district.

The following note relates to my most successful capture : April 30, 1837.—In Colin Glen (near Belfast) during an hour's patient search today, I collected from amongst a mass of the dead leaves of trees contained within the area of a square foot, twenty-one full-grown individuals of *Helix lamellata*, and about half this number of younger specimens ; both shell and animals of these latter are lighter coloured than the old, indeed almost hyaline, and the lamellæ are apparent on the very youngest, which also exhibit the satin-like lustre of the adult. The mature animal is white beneath ; the tentacula, back and sides greyish black ; lower tentacula of moderate length, upper long and somewhat club-shaped.

In Auchairne Glen near Ballantrae, Ayrshire, I obtained this species in August 1839.

11. *Helix granulata*, Alder, Mag. Zool. and Bot. vol. ii. p. 107 ; Gray, Man. p. 151. pl. 3. f. 29.

H. hispida, Mont. p. 423. t. 23. f. 3.

This would seem to be a very local species with us. By Mr. W. H. Harvey I was in 1838 supplied with specimens, accompanied by a note, stating that the species had occurred to him in "moist places, and the rejectamenta of streams about Limerick and Ballitore, (county Kildare)." At the same time Mr. Humphreys, of Cork, reported it to me as found, but not commonly, at "Belgrove demesne, east of Cove."

12. *Helix sericea*, Muller*. Gray, Man. p. 153. pl. 11. f. 134.

In the rejectamenta of the river Lagan near Belfast, I have obtained specimens corresponding with those favoured me by Mr. Alder under this name. This shell is, in general form, size of umbilicus, &c. intermediate between *H. hispida* and *H. granulata*, but

* According to Ferussac : see Alder, Mag. Zool. and Bot. vol. ii. p. 107.

10. *Helix lamellata*, Jeffreys. Linn. Trans. vol. xvi. p. 333 ; Gray, Man. p. 150. pl. 5. f. 48.

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This attractive species is widely distributed in Ireland, and is found on the decaying leaves and fallen branches of trees, in moss, and under stones in shady and generally moist situations. I first met with it in Sept. 1833, in the Glen at Holywood House, county Down, and soon afterwards in various localities throughout this county and Antrim ; about O'Sullivan's cascade at the lower lake of Killarney, I had the gratification to find it in June 1834, and subsequently in the Glen of the Downs, county Wicklow. By the Rev. B. J. Clarke it has been obtained at La Bergerie, Queen's county, and by the Rev. T. Hincks of Cork, at Dunscombe Wood near that city, and likewise at Ballinhassig Glen between Cork and Bandon. Mr. Hincks remarks that the species appears to be far from uncommon in that district.

The following note relates to my most successful capture : April 30, 1837.—In Colin Glen (near Belfast) during an hour's patient search today, I collected from amongst a mass of the dead leaves of trees contained within the area of a square foot, twenty-one full-grown individuals of *Helix lamellata*, and about half this number of younger specimens ; both shell and animals of these latter are lighter coloured than the old, indeed almost hyaline, and the lamellæ are apparent on the very youngest, which also exhibit the satin-like lustre of the adult. The mature animal is white beneath ; the tentacula, back and sides greyish black ; lower tentacula of moderate length, upper long and somewhat club-shaped.

In Auchairne Glen near Ballantrae, Ayrshire, I obtained this species in August 1839.

11. *Helix granulata*, Alder, Mag. Zool. and Bot. vol. ii. p. 107 ; Gray, Man. p. 151. pl. 3. f. 29.

H. hispida, Mont. p. 423. t. 23. f. 3.

This would seem to be a very local species with us. By Mr. W. H. Harvey I was in 1838 supplied with specimens, accompanied by a note, stating that the species had occurred to him in "moist places, and the rejectamenta of streams about Limerick and Ballitore, (county Kildare)." At the same time Mr. Humphreys, of Cork, reported it to me as found, but not commonly, at "Belgrove demesne, east of Cove."

12. *Helix sericea*, Muller*. Gray, Man. p. 153. pl. 11. f. 134.

In the rejectamenta of the river Lagan near Belfast, I have obtained specimens corresponding with those favoured me by Mr. Alder under this name. This shell is, in general form, size of umbilicus, &c. intermediate between *H. hispida* and *H. granulata*, but

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hardly differs more from the ordinary state of *H. hispida* than the specimens of it common to the North of Ireland do, and which are considered by Mr. Alder and M. Michaud only varieties of the species bearing this name. I cannot look upon it otherwise than as a var. of *H. hispida*.

13. *Helix hispida*, Mull. Gray, Man. p. 154.* pl. 4. f. 41; Turt. Man. p. 57. f. 41.

This species is generally distributed over Ireland. It is one of the most common land shells in the North, and may be found under stones, fallen trees, decaying leaves, &c. from the sea-shore to the most elevated chalk districts, and both in moist and very dry situations. It is most variable in colour; from beneath the same stone I have procured specimens varying from a crystalline transparency to dark reddish brown, and in these differences the animal participates with the shell; like *H. rufescens*, Mont. and some other species, it occasionally presents a white band on the last volution; in the very youngest state this species is hispid, and quite depressed or flat above. The internal rib, in what to distinguish it from *H. concinna*, may be called the normal state of *H. hispida*, which I find in the North is generally wanting; on supplying Mr. Alder with specimens of these in April 1836, he observed that they were the most strongly marked varieties he had seen; and about the same time, M. Michaud, in acknowledging specimens I had sent him, remarked upon them as a very fine variety of *H. hispida*. The shells thus alluded to are of the most common form in the North of Ireland; and are larger, more depressed, and with the umbilicus comparatively wider than in specimens which I have found in various parts of England and Scotland, and which are similar to those that under the name of *H. hispida* have been sent me from Newcastle by Mr. Alder and from Lorraine† by M. Michaud; specimens the same as the English and French are likewise to be met with in the North of Ireland, but are rare comparatively with the others.

NOTE.—Sept. 17, 1837. On looking to the animals of full-grown specimens of this *Helix* collected at Wolfhill near Belfast, I could not perceive any difference between the inhabitants of the very hispid shells wanting the internal rib, and those having the rib and displaying very few hairs—the animals are commonly pale grey above and whitish beneath; in the very hispid shells they varied from this colour to black.

14. *Helix concinna*, Jeff. Gray, Man. p. 154. pl. 12. f. 135.

The shell alluded to under this name is that described by Mr. Alder, as “stronger, and with the hairs more deciduous than the usual form [of *H. hispida*],” Mag. Zool. and Bot. vol. ii. 107, and which I would add is generally more convex, and has an internal rib,

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Specimens of *H. concinna* from the neighbourhood of Bristol, favoured me by Mr. Jeffreys, are, as he now considers, certainly nothing more than *H. hispida*, and in its ordinary depressed form; still the *typical* specimens of these two *Helices* are very distinct in appearance, but through their varieties would almost seem to unite.

“*Helix circinata*, Fer.”

I cannot perceive any difference between some of my North of Ireland specimens of *H. concinna*, when completely denuded of their hairs, and a shell so named, which I owe to the kindness of Mr. Alder.

15. *Helix rufescens*, “Penn.” Mont. p. 420. t. 23. f. 2; Gray, p. 156. pl. 3. f. 28.

H. glabella, *Drap.* p. 102. pl. 7. f. 6.

This species is common to the southern two-thirds of the island: as far north as Banbridge in the county of Down it has been found.

16. *Helix Pisana*, Mull. Gray, *Man.* p. 158. pl. 4. f. 30.

H. cingenda, *Mont.* p. 418. t. 24. f. 4.

H. rhodostoma, *Drap.* p. 86. pl. 5. f. 13—15.

This fine and local species was first noticed as Irish in Turton's Catalogue (p. 8.), from specimens collected at “Balbriggan Strand,” or as more correctly given by their discoverer M. J. O'Kelly, Esq. in the edition of Pennant's British Zoology, published in Dublin in 1818, “near Balbriggan, on the county Meath side of the stream that divides this county from Dublin,” vol. iv. p. 369. By Mr. O'Kelly and Mr. T. W. Warren I have been favoured with specimens of *H. Pisana* from this locality. My friend R. Callwell, Esq. of Dublin, informs me that this species has been found at another, though not far distant station, by Mr. Joseph Humphreys, on the north side of the river Boyne, three miles east of Drogheda, and ten north of Balbriggan.

17. *Helix virgata*, Mont. p. 415. t. 24. f. 1; Gray, *Man.* p. 160. pl. 4. f. 31.

H. variabilis, *Drap.* p. 84. pl. 5. f. 11. 12.

In the north, east and south this species is found, but in the west I am not aware of its presence. It is a local species, occurs on the marine sand-hills at Ballycastle, in the north of the county Antrim; Dundalk (county Louth); Dublin, Wicklow, Youghal, and Cork;

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and at the inland localities of La Bergerie, near Portarlington and Ballitore (county Kildare). *H. virgata* is one of the species which seems to follow no rule in the choice of its abode or in that of its associates, or rather whose absence from or presence in particular districts cannot be accounted for; it will be abundant on sea-banks at one place, and for a hundred miles again will not appear in similar localities. Some authors have remarked, from their own accurate observation in particular localities, that it is never found with *H. ericetorum*; and Mr. W. H. Harvey, in supplying me with notes of four inland and marine stations in which he had observed it, remarked, "I have noticed that this species is never found mixed with *H. ericetorum*, nor is it generally in the same neighbourhood;" yet not very far distant from one of those alluded to, both species are found in company*, and on the same plant.

In the collection of T. W. Warren, Esq. of Dublin, is a very fine series from one locality, Portmarnock†, presenting every variety of colour and bands that I have seen described, from the hyaline and opaque white to the darkest brown. *H. ericetorum* has in similar variety been procured by this excellent and indefatigable collector at the same place, and *H. Pisana*, likewise differing, he possesses from its not far distant station:—one of the most beautiful of these three species is opaque white with hyaline bands. At La Bergerie, near Portarlington, Mrs. Patterson of Belfast obtained a specimen of *H. virgata*, which both in form and colour bears a rude resemblance to the *Helix elegans* of Brown.

18. *Helix caperata*, Mont. p. 430. t. 11. f. 11; Gray, Man. p. 162. pl. 4. f. 32.

H. striata, Drap. p. 106. pl. 6. f. 18—21.

In Brown's "Irish Testacea" this species was noticed to be "not uncommon at Naas on mud walls," p. 526; and "Bullock in Ireland," was given by Dr. Turton as a habitat. (Conch. Dict. p. 51.) The *H. caperata* is in Ireland a very local species, is found in the southern half of the island, and appears to be plentiful where it does occur. From W. H. Harvey, Esq. I had specimens in 1833, which were collected by him at Glanmire near Cork; on "dry banks at Kilkee Castle near Ballitore, county Kildare," he had likewise procured the species. At Kingstown near Dublin, contiguous to Dr. Turton's station, it has been collected by Mr. Warren. At La Bergerie (Queen's county) it was a few years ago obtained in abundance by Mrs. Patterson of Belfast. Among the specimens brought from this locality (and presenting gradations in colour from the ordinary state to that of being almost wholly of a deep reddish brown) was one shell entirely of a pale amber colour, and transparent, the fine and

* Montagu mentions their so occurring.

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In Brown's "Irish Testacea" this species was noticed to be "not uncommon at Naas on mud walls," p. 526; and "Bullock in Ireland," was given by Dr. Turton as a habitat. (Conch. Dict. p. 51.) The *H. caperata* is in Ireland a very local species, is found in the southern half of the island, and appears to be plentiful where it does occur. From W. H. Harvey, Esq. I had specimens in 1833, which were collected by him at Glanmire near Cork; on "dry banks at Kilkee Castle near Ballitore, county Kildare," he had likewise procured the species. At Kingstown near Dublin, contiguous to Dr. Turton's station, it has been collected by Mr. Warren. At La Bergerie (Queen's county) it was a few years ago obtained in abundance by Mrs. Patterson of Belfast. Among the specimens brought from this locality (and presenting gradations in colour from the ordinary state to that of being almost wholly of a deep reddish brown) was one shell entirely of a pale amber colour, and transparent, the fine and

* Montagu mentions their so occurring.

† In Mr. R. Ball's cabinet, and collected by him here off a single plant of *Beta maritima*, are specimens of a pure white colour, others of a uniform dark chocolate brown, in addition to the more common state, white with brown bands and the reverse.

regular striæ rendering it very beautiful. Here, in addition to this species, *H. ericetorum* and *H. virgata* were found by Mrs. Patterson, and were abundant on the same plant, the *H. caperata* being the most plentiful.

The distribution of *H. caperata* seems rather anomalous; it is unknown to me in the North of Ireland, but on the walls of the houses in Portpatrick, one of the nearest parts of Scotland to this country, I have remarked it; about Ballantrae in Ayrshire it has not occurred to me; at the base of the cliffs at Salisbury Craigs near Edinburgh, I in 1834 procured it in abundance.

19. *Helix ericetorum*, Mull. Mont. p. 437. t. 24. f. 2; Gray, Man. p. 163. pl. 4. f. 37.

H. cespitum, β . Drap. p. 109. pl. 6. f. 16, 17.

This *Helix* differs from its nearest British allies, *H. virgata*, *H. Pisana* and *H. caperata*, in being pretty generally diffused over Ireland and the adjacent islands; most of the marine sand-banks around the coast claim it, but *H. virgata* in some places appears to its exclusion; it likewise affects the most inland localities, from one of which, near Portarlington, I have specimens so large as 9 lines in diameter. An exception to the more ordinary places of its occurrence may be mentioned; the ruins of Dunluce Castle, situated on the summit of an insulated mass of rock, considerably elevated above the sea. In localities in the north, but a few miles distant, and in every respect presenting a similar appearance, I have remarked the specimens in the one to be without exception either uniform in colour or very faintly banded, and in the other not one to be of an uniform colour, but all banded, and almost every individual darkly so. Draparnaud's *H. cespitum*, β . pl. 6. f. 15, 17., and Pfeiffer's *H. cespitum*, taf. 2. f. 24. and β . f. 25., are all very characteristic figures of our *H. ericetorum*, as is Rossmassler's var. f. 516. This author's *H. ericetorum*, f. 517. *a.* and *b.* likewise represent it. My friend Mr. E. Forbes informs me that in the Museum at the Jardin des Plantes, Paris, he in 1838 saw a young shell of this species marked "*H. revelata*, Belfast," and as presented by M. Michaud; it is doubtless one of a series of specimens, which, considering them to be *H. ericetorum*, I had the pleasure of sending to this naturalist some time before.

Mr. O'Kelly of Dublin, to whom the shell belongs that was described and figured by Capt. Brown in the Wernerian Memoirs as *Helix elegans*, and in his "Illustrations," &c. as *Carocolla elegans*, always considered it as an extraordinary state only of *H. ericetorum*, and as such noticed it in the Dublin edition of Pennant's Brit. Zool. vol. iv. p. 368. ed. 1818. To the same specimen Dr. Turton applied the term *Helix disjuncta*, Conch. Dict. p. 61. f. 63.; in his Manual (p. 40.) this author places it under *H. virgata*. See also Gray, Man. p. 161.

20. *Helix rotundata*, Mull. Drap. p. 114. pl. 8. f. 4—7.

Zonites rotundatus, Gray, Man. p. 165. pl. 5. f. 44.

Helix radiata, Mont. p. 432. t. 24. f. 3.

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This very distinct and handsome species, both in form and colour, is common and universally distributed in Ireland. It affects situations varying from very dry to very wet, and may be found on rocks, under stones, fallen leaves, &c., but seems rather to show a predilection for decaying wood. I have more than once detected the *H. rotundata* in company with *Limaces* banqueting on some of the larger *Fungi*.

Specimens presenting much convexity are unfrequent, but in Shane's Castle Park (county Antrim) a full-grown one has occurred to me, whose height was equal to its diameter. At Holywood House (county Down) I once obtained two specimens of the beautiful crystalline variety. The young of this species differ very much in form from the adult, in being quite flat above and very convex beneath. In the stomach of a Blackbird (*Turdus Merula*), I once found ten full-sized specimens of this shell, in addition to five of *Achatina lubrica*.

21. *Helix umbilicata*, Mont. p. 434. t. 13. f. 2.

Zonites umbilicatus, Gray, *Man.* p. 166. pl. 5. f. 45.

Helix rupestris, *Drap.* p. 82. pl. 7. f. 7—9; *Turt. Man.* p. 60. f. 45.

Is commonly distributed throughout the southern three-fourths of Ireland, more especially over the great limestone belt which traverses the country:—"at its eastern commencement near Dublin, and at its extreme western verge, where it dips into the ocean" in the South Islands of Arran, I have found it in equal abundance. This *Helix* attaches itself more to one kind of rock limestone than any species hitherto treated of. With reference to what Montagu says of its habits, it may be remarked that I have commonly collected specimens on limestone debris resting on the ground and on loose stone walls or dykes. I have not seen any Irish specimens agreeing with Draparnaud's figure in tapering to the apex*; but all were of his var. " β . testa subdepressa, umbilico latiore." Mr. Gray's figure, as above quoted, is characteristic of this form; in the 1st ed. of Turton's Manual the other form was given. It is *Drap.* var. β . only that Mr. Jeffreys quotes (*Linn. Trans.* vol. xvi. p. 343.), and it is this which Montagu describes; his figure does not well represent either form.

22. *Helix pygmæa*, *Drap.* p. 114. pl. 8. f. 8—10; *Turt. Man.* p. 61. f. 46.

Zonites pygmæus, Gray, *Man.* p. 167. pl. 5. f. 46.

This species, so interesting from its minuteness, is indigenous to the more northern two-thirds of Ireland from east to west, and doubtless will be found by him who searches properly for it in the south. It is partial to shade and moisture, under stones in pastures may be procured, but is most readily and frequently obtained on fallen leaves, &c. in plantations. Since the Mollusca first claimed my

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23. *Helix alliaria*, Miller. Turt. Man. p. 56. f. 39.

Zonites alliarius, Gray, *Man.* p. 168. pl. 4. f. 39.

Although not an abundant species anywhere, is generally distributed over Ireland and her islands. From under stones at the sea-side to a great elevation on the mountains,—as near the summit of Divis, the highest of the Belfast chain—of Altavanagh, one of the mountains of Mourne in Down, and of Ben Bulben in Sligo, I have met with it—all situations, from the exposed sea-shore and mountain side to the umbrageous wood, seem alike to it. A greenish white variety, and the shell strong, is much more common in Ireland than the yellow, which is ranked the ordinary state: from under the same stone I have procured specimens of both colours. The animal is blackish. M. Michaud remarked, on acknowledging Irish specimens from me, that they were *H. nitida*, Drap., junior.

24. *Helix cellaria*, Mull.

Zonites cellarius, Gray, *Man.* p. 170. pl. 4. f. 40.

Helix nitida, Drap. p. 117. pl. 8. f. 23—25.

Is common, and distributed over Ireland. It has a predilection for wet situations, and even from the bottom of drains, partially covered with water, some of my largest specimens were procured in the north; the very largest Irish specimens— $7\frac{1}{2}$ lines in diameter—I have seen were found in drains within the city of Dublin, by Mr. T. W. Warren, to whom I am indebted for them. From the stomachs of the Blackbird and Starling I have taken perfect specimens of this shell.

25. *Helix pura*, Alder. Turt. Man. p. 59.

Zonites purus, Gray, *Man.* p. 171. pl. 4. f. 43.

Is distributed over Ireland; it is usually found in moss, under stones, &c., in sheltered situations, but on sea-side pastures likewise I have met with it. The yellowish horn-coloured variety has in all parts of the country occurred to me more commonly than the hyaline shell: the closely set, regular, and fine striæ render recent shells of this species very beautiful. M. Michaud, on acknowledging Irish specimens of *H. pura*, observed that they were *H. nitidula*, Drap.

26. *Helix nitidula*, Drap.*

Zonites nitidulus, Gray, *Man.* p. 172. pl. 12. f. 136.

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This species, most characteristically described by Mr. Alder (Newc. Trans. v. 1. p. 38.), is common, and generally distributed over Ireland. In the north I have found it chiefly among mosses in glens and sheltered places. From two localities in this country I have seen *Helices* of crystalline transparency, and in form intermediate between *H. nitidula* and *H. alliaria*.

27. *Helix radiatula*, Alder.

Zonites radiatulus, Gray, *Man.* p. 173. pl. 12. f. 137*.

This polished and well-marked species at every age—for when very young the regular and strongly marked striae serve to distinguish it—has since 1832 occurred to me in the county of Londonderry, in the neighbourhood of Dublin, and in very numerous localities throughout Down and Antrim. I have seen specimens which were collected at Annahoe (county Tyrone), by Edward Waller, Esq.; at La Bergerie (Queen's county), by Mrs. Patterson and the Rev. B. J. Clarke; and in the neighbourhood of Cork, by Miss Hincks. In the North of Ireland the transparent greenish white var. *H. vitrina*, Fer., as often occurs as the deep yellowish horn-coloured shell. That this *Helix* is more widely distributed in this country than would appear from the above notes, I have no doubt. At Dovedale in Derbyshire, and Ballantrae in Ayrshire, I have met with it, and by W. H. Harvey, Esq. have been favoured with specimens which he collected at the Falls of Clyde in 1832. In moist spots, in the wildest and bleakest localities, as well as in "woods," I have procured it. In the stomachs of four out of seven Starlings (*Sturnus vulgaris*) brought to a bird-preserved in Belfast at different periods during one winter, I found specimens of this shell, of which some were very fine and perfect. M. Michaud, when acknowledging specimens which I sent him, remarked that they were a var. of *H. nitidula*, Drap.

28. *Helix lucida*, Drap. p. 103. pl. 8. f. 11, 12.

Zonites lucidus, Gray, *Man.* p. 174. pl. 4. f. 38. and wood-cuts, p. 175†.

The *H. lucida*, described and figured by Draparnaud, and characterized by Mr. Alder in the Transactions of the Natural History Society of Newcastle (vol. i. part 1. p. 38), appears to be in Ireland, as in England, according to the latter author, "rare," and rather a local species. In the rejectamenta of the rivers Lagan and Blackwater, near Belfast, I in 1833 obtained a few individuals, and in Kilmegan bog (county Down) have since procured a series containing the living animal. I have seen specimens which were collected near Portarlinton by the Rev. B. J. Clarke‡, and at Finnoe, in the north of

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‡ In a letter dated November 24, 1838, Mr. Clarke observed, in sending me specimens of *H. lucida*, "It is only under one stone I ever got this shell; *Ann. & Mag. Nat. Hist.* Sept. 1840. D

This species, most characteristically described by Mr. Alder (Newc. Trans. v. 1. p. 38.), is common, and generally distributed over Ireland. In the north I have found it chiefly among mosses in glens and sheltered places. From two localities in this country I have seen *Helices* of crystalline transparency, and in form intermediate between *H. nitidula* and *H. alliaria*.

27. *Helix radiatula*, Alder.

Zonites radiatulus, Gray, *Man.* p. 173. pl. 12. f. 137*.

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29. *Helix excavata*, Bean, Alder.

Zonites excavatus, Gray, *Man.* p. 175.

Of this handsome shell I have yet seen but a single Irish specimen, which was obtained at Dunscombe Wood, near Cork, by Miss King of that city. On being shown to the Rev. T. Hincks, he at once identified it with *H. excavata*, and, with the kind permission of the owner, sent it to Belfast for my inspection; it in all respects agrees with English specimens of this *Helix* favoured me by Mr. Jeffreys and Mr. Alder.

30. *Helix crystallina*, Drap. p. 118. pl. 8. f. 13—18; Turt. *Man.* p. 58. f. 42.

Zonites crystallinus, Gray, *Man.* p. 176. pl. 4. f. 42.

Is generally distributed in Ireland, occurring in moss, under stones, upon decaying wood, &c., in dry and wet situations, though in the latter more frequently. Some adult specimens which I have collected have had but $3\frac{1}{2}$ volutions instead of $4\frac{1}{2}$ or 5, the ordinary number. Extensively as I have collected this *Helix* in Ireland, none but dead specimens would come under Draparnaud's var. "*β eburnea subopaca*." The animal is of a white colour.

Mr. Alder's views in reference to the last eight species (*Hyalina*, Fer.), are here adopted; but even the British species and their varieties belonging to this division seem not yet to be satisfactorily cleared up. The application of the same name too, by British and continental authors to different species, adds much to the confusion. Ireland possesses all the British species as distinguished by Mr. Alder, viz. *H. cellaria*, *H. nitidula*, *H. lucida*, *H. excavata*, *H. alliaria*, *H. radiatula*, *H. pura*, *H. crystallina*. Rossmassler's *H. nitens*, f. 524 and 525, are very characteristic representations of shells I possess from different parts of Ireland, and with his *H. glabra*, f. 528, so far as a figure and diagnostic description will suffice for judgment, I have specimens identical.

on leaving it undisturbed for about a fortnight I generally find one or two specimens under it. The field is marshy; and here I also find *Vertigo palustris*, but only within the space of a few square yards of the most marshy part. A little higher up, in the same field, *Vertigo pygmæa* is obtained. On going my rounds about once a fortnight, I procure a fresh crop of specimens of all three species from each spot!"

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